I-95 Rail Corridor Study Update

Rail Advisory Board
January 5, 2007

2006 General Assembly Study

- General Assembly directive (HB 5012):
  - Analyze feasibility of a third track
  - Identify needed Right-of Way
  - Develop implementation plan based on optimal options, including schedules for each phase and project financing
  - Review legal and regulatory issues
  - Estimate cost of powering passenger trains by electricity for Third Track from Washington, DC to Richmond

Scope of Work

- Identify rail services in corridor
- Document basis for third track
- Define third track conceptual design and anticipated operation
- Estimate minimum construction cost
- Evaluate potential environmental effects and documentation requirements

Scope of Work (Cont.)

- Review legal and financial issues
- Assess cost of electric powered trains
- Evaluate connections to possible enhanced passenger rail service to Hampton Roads
- Present preliminary implementation priorities and schedule

Study Production

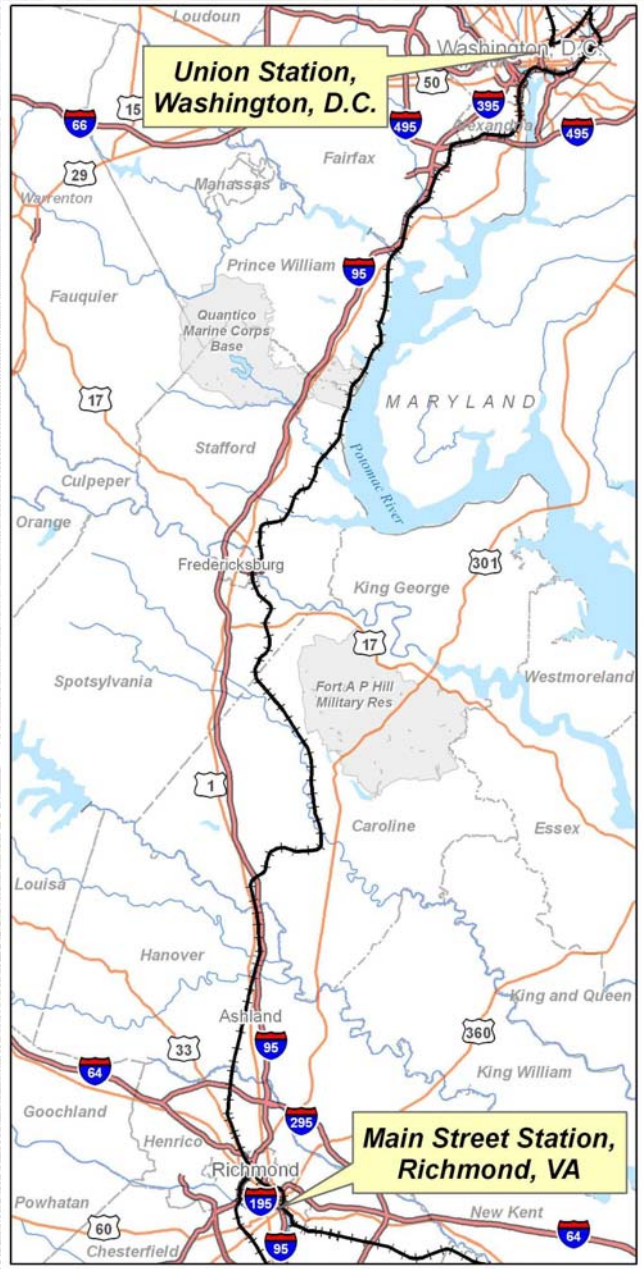
- DRPT was assisted by:
  - HDR Engineering, Inc.
  - The Virginia Transportation Research Council
- Schedule:
  - Study directive enacted by General Assembly in June 2006.
  - Funding available in July 2006.
  - Following DRPT's procurement process, a scope of work was defined and study was awarded to HDR with 10-week delivery date for 1st draft.
  - Study work was initiated in August 2006.
  - First draft delivered to DRPT November 1, 2006.
  - Final report delivered December 1, 2006, the specified due date for the General Assembly

I-95 Rail Corridor Study

Identification of Rail Services in the Corridor (1)

Corridor Ownership:

- Corridor owned by CSX Transportation
- 118 miles from Union Station to Main Street Station
- 1.2 miles into Washington Union Station owned by Amtrak



Identification of Rail Services in the Corridor (2)

Passenger Rail Operations:

- VRE Operations
  - 14 trains/day on Fredericksburg Line
  - 16 trains/day on Manassas Line – join CSX in Alexandria
  - 12 Stations on the CSX Line
  - Ridership: 14,400 Total/Day
    7,600 Fredericksburg Line/Day
    6,800 Manassas Line/Day
- Amtrak Operations
  - DC to Richmond Staples Mill: 18 trains/day
  - DC to Richmond Main Street: 4 trains/day
  - Approximately 600,000 riders/year

Identification of Rail Services in the Corridor (3)

Freight Rail Operations:

- CSX Operations
  - 25-30 through trains/day plus additional local trains.
  - Primary North-South freight route on East Coast.
  - Richmond to Doswell segment has second highest rail tonnage on entire I-95 corridor line – 134.5 million Gross Tons (*2005 CSX Railroad Tonnage Map*).
- Norfolk Southern Operations
  - Trackage rights on 2.2 mile section of CSX line for delivery of coal to power plant in Alexandria and access to the Northeast Corridor, with no more than one train per day.

Previous Studies of Track Capacity

- Washington, DC–Richmond Corridor Study, DRPT 1996
  - Concept and feasibility study.
  - Identified 3rd track concept.
- Washington–Richmond Supplement to NEC Transportation Plan, FRA 1999
  - Performed operational modeling.
  - Identified specific improvements.
- Southeast High Speed Rail Corridor Draft Tier I EIS, DRPT/NCDOT 2002
  - Included as a segment of the Washington, DC to Charlotte, NC corridor.
- Third Track Conceptual Location Study, DRPT 2004
  - Conceptual location of third track in 92.7-mile corridor between Staples Mill Road Station and Ravensworth (Franconia).
  - Guide location and design of individual improvements and ultimately location of third track.

Definition of the Third Track and Anticipated Operation

- Not constructed as completely separate track and not dedicated to passenger service only.
- Would be a mainline track along with two other mainline tracks in an integrated system.
- New track built on east or west side of existing track.
- Crossovers would be located at key locations.
- Both passenger and freight train access throughout the day.
- Facilitates bi-directional traffic if one track occupied or blocked, anticipated reduced delays for VRE.
- Would not eliminate CSX heat restriction policy that limits train speeds during hot days.

Assumptions for Minimum/Partial Construction Costs: Items Included

- Assumes construction of a nearly continuous third track along the entire corridor.
- Includes substantial improvements between Main Street and Staples Mill Road Stations in Richmond Terminal Area.
- Assumes that third track and Richmond improvements can largely fit within the existing CSX Right-of-Way.
- Includes contingency of 30% of overall project construction costs.

Assumptions for Minimum/Partial Construction Costs: Items Excluded (1)

- Third track through Ashland or Fredericksburg
- New bridge across the Potomac River
- Electrification in the corridor
- Hampton Roads service connection
- Detailed environmental impacts and mitigation
- Costs for ROW acquisition or access costs, liability, maintenance and other legal issues
- Analysis of alternative ROW outside CSX corridor
- Costs for utility relocation or assessment of affected utility easement agreements

Assumptions for Minimum/Partial Construction Costs: Items Excluded (2)

- No preliminary engineering plans, field surveys or analyses available to develop cost estimate.
- No escalation to year of expenditure dollars, costs are in 2006 dollars.
- No consideration of unavoidable additional costs for construction of phased individual segments.

Major Cost Categories

- Trackwork
- Bridges
- Drainage
- Earthwork
- Communications and Signals
- Engineering Services (Design)
- Environmental and Permitting
- Contingencies (30%)

Example Costs: Bridges

Stream Crossings by Size of Bridge

Small:

Medium:

Large:

Preliminary Minimum Cost Estimate

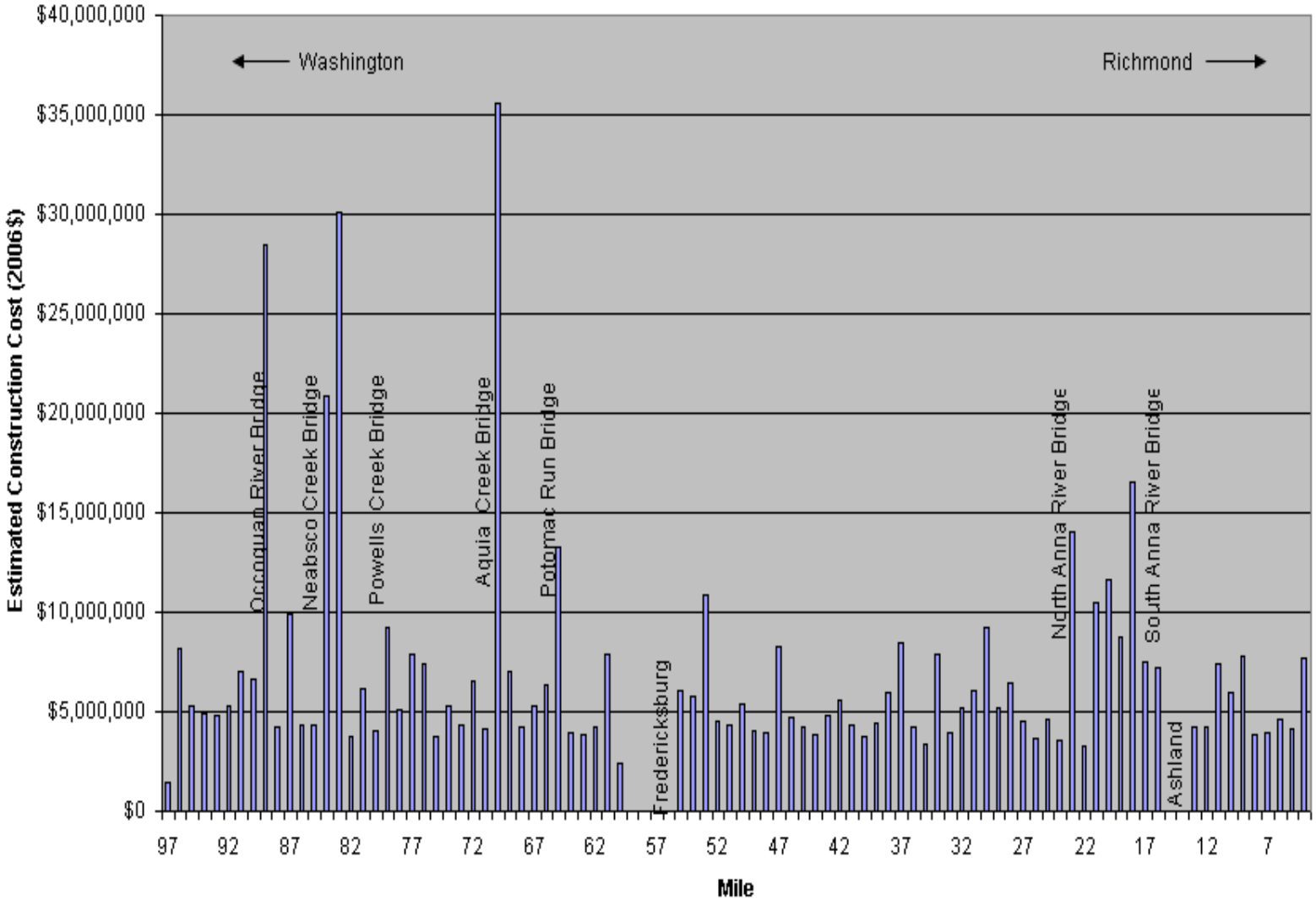
- Costs calculated in 2006 $
- Noted Exclusions
- Minimum Cost Estimate:

Third Track $612.2 million

Richmond Terminal $ 71.8 million

TOTAL: $684.0 million

Estimated Cost Per Mile



Potential Environmental Effects, Documentation and Permitting

- Each mile assigned low, medium or high level of environmental concern.
- Cost percentage applied to each category to cover permitting and mitigation activities.
- Impacts and mitigation for water bodies, wetlands and known historic sites.
- One or more Environmental Assessments likely needed, depending on project phasing.
- Third track through or bypass of either Ashland or Fredericksburg would be likely to require additional analysis and mitigation.

Legal and Financial Issues

- DRPT position: third track in CSX corridor is not a new line, but rather additional capacity and thus does not anticipate STB jurisdiction.
- New alignment may require STB approval.
- State legislation and regulations pertain to ROW and eminent domain powers of the state, liability and indemnification issues, and tax issues concerning railroads.
- Several funding mechanisms may apply to state funding of a third track program:
  - The Rail Enhancement Fund Transportation
  - Partnership Opportunity Fund
  - PPTA of 1995

Electric Powered Trains (1)

- Concept similar to Amtrak's NE Corridor, based on 118 miles of operating track.
- Electrify all three tracks.
- Includes traction power substations, electric utility supply feeders, overhead catenary system and storage yard in Richmond.
- Includes a minimum of 6 electric locomotives.
- Costs developed without engineering plans, topographic surveys or field surveys.

Electric Powered Trains (2)

- Supports for overhead power lines could impact ROW and clearances for maintenance.
- New safety risks associated with electric power and personnel entering the ROW.
- SEHSR project does not propose electrification: level of service / ridership do not justify high cost.
- CSX on record as not supporting electrification due to the way they operate and maintain the rail line.
- Total estimated minimum cost of $953 million (does not include $684 for third track or operational costs).

Hampton Roads Service

- DRPT now examining enhanced service through Richmond/Hampton Roads Passenger Rail Study.
- DEIS available spring 2007, CTB will choose one alternative to advance for further study.
- No additional funding identified to continue into Final EIS phase or any other additional study.
- Modeling required to determine effects on third track capacity of enhanced service.

Preliminary Implementation Schedule (1)

Initiate a comprehensive analysis: (12 mos.)

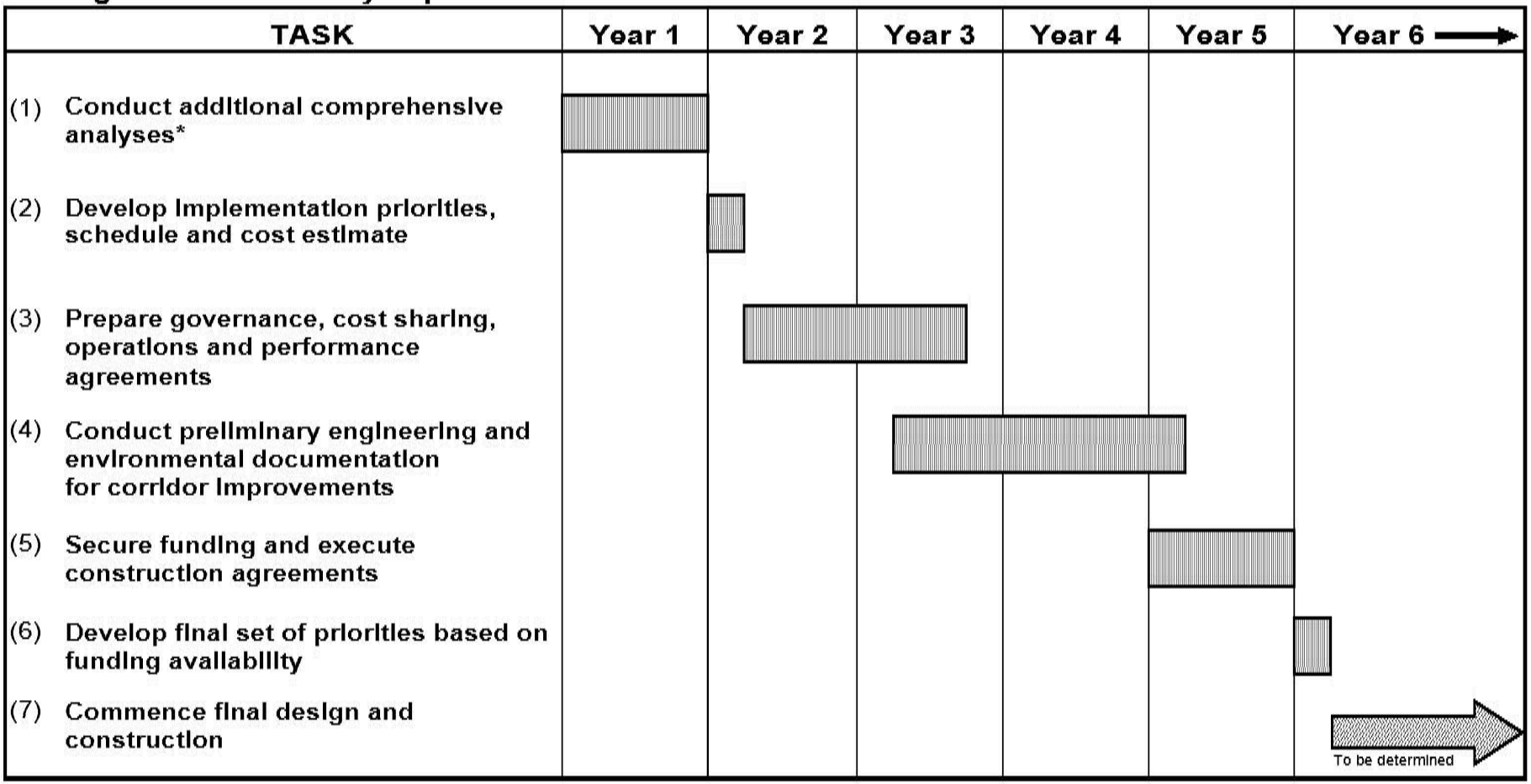
- Review of alternative ROW options in corridor
- Completion of capacity and train operations modeling
- Develop ridership projections
- Develop a governance strategy
- Identify public and private benefits
- Establish enforceable performance standards
- Develop cost sharing arrangements
- Develop a funding plan

Preliminary Implementation Schedule (2)

- Develop project implementation priorities and schedule and cost estimates (3 mos.)
- Prepare agreements to address governance, cost sharing, operations and performance (24 mos.)
- Conduct PE and environmental work (24 mos.)
- Secure funding, execute construction agreements (12 mos.)
- Develop final priorities based on available funding (2 mos.)
- Begin final design/construction of highest priority projects (duration TBD)

Preliminary Implementation Schedule

Figure 2 - Preliminary Implementation Schedule



*Includes capacity, operations, alternative right-of-ways, ridership and benefits analyses. Also, develop governance strategy, performance standards, cost sharing and funding plan arrangements.

2006 General Assembly Report Summary of Key Findings

- Feasibility of 3rd Track could not be determined from a cost and funding perspective.
- Minimum/partial cost estimate does not include:
  - Cost escalations due to phasing and inflation
  - Cost of electrification ($953 M minimum cost)
  - Purchase of right-of-way
  - Relocation of utilities
  - Route through Ashland or Fredericksburg
  - Potomac River bridge
- Total minimum/partial cost estimate:
  - Partial Third Track: $612.2 million
  - Richmond Terminal: $71.8 million
  - TOTAL: $684.0 million– major exclusions could dramatically increase this estimate
- Costs calculated in 2006 dollars.